

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claims 5-7 have been amended such that the terminology therein corresponds to that in the parent claim 8, while claim 10 has been amended to clarify the syntax of the terminology therein.

Applicant believes that the Examiner is misreading claim 10. In particular, the Examiner states that claim 10 reads "first and second delay circuits coupled, respectively, to said third and fourth sixth-order filters, respective outputs from second inputs of said first and second combination circuits". However, in actuality, claim 10 states "first and second delay circuits coupled, respectively, to said third and fourth sixth-order filters, respective outputs from said first and second delay circuits being coupled to respective second inputs of said first and second combination circuits" (emphasis added).

Applicant believes that the above changes and explanation answer the Examiner's 35 U.S.C. 112, paragraph 2, rejection of the claims, and respectfully request withdrawal thereof.

Applicant further asserts that the above changes are grammatical and are not intended to affect the scope of the claims.

The Examiner has finally rejected claims 8, 5, 6 and 9 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,067,360 to Kasai et al. The Examiner has further rejected claim 7

N:\UserPublic\GO\FB25GOA0.GOR 6

under 35 U.S.C. 103(a) as being unpatentable over Kasai et al. in view of U.S. Patent 5,412,732 to Kanishi et al.

The Kasai et al. patent discloses an apparatus for localizing a sound image and a method for localizing the same, in which front left and right sound signals and surround left and right sound signals are processed and applied to a single pair of loudspeakers 4L/4R such that the sound generated by these two loudspeakers 4L/4R give the listener 2 the impression that, in addition to the sound images emanating directly from these two loudspeakers 4L/4R, left and right surround sounds are emanating from virtual surround speakers XL/XR positioned to the left and right of the listener, and widened left and right signals are emanating from virtual loudspeakers XXL/XXR positioned wider than loudspeakers 4L/4R. As such, the Kasai et al. apparatus enables a listener to appreciate surround sound and widely spaced front speakers without having to actually purchase and position the actual additional loudspeakers. (It should be understood that one of the basic complaints against multi-speaker systems is the difficulty of integrating these additional boxes in the decorating scheme of a room.)

The Examiner now states "Kasai does not expressly disclose left and right rear loudspeakers for reproducing sounds corresponding to said input left and right rear sound." Then the Examiner adds "However, the Examiner takes official notice that it

N:\UserPublic\GO\PB25GOA0.GOR 7

is well known in the art to provide the left and right rear sound signals (SL, SR) to left and right rear loudspeakers due to the fact that a proportion of multi-media user will already possess, or will buy a 4 (or more) speaker configuration to cater for alternative formats, such as Dolby Digital."

Applicant submits that the Examiner's modification of Kasai et al. goes directly against the teachings of Kasai et al. It should be apparent that at the time of Kasai et al., multi-speaker surround systems existed. However, Kasai et al. has devised a system which give the listener the sound effects of a multi-speaker surround system without having to physically have the surround speakers. To add left and right rear speakers to reproduce the input SL/SR signals would defeat the purpose of Kasai et al., and could possibly destroy the generated effects of the virtual loudspeakers.

Further, the input signals to the Kasai et al. apparatus are FL, FR, SL, SR (along with, in an alternate embodiment, C and LFE (low frequency)). There is no indication of left and right rear signals. Kasai et al. is generating virtual surround loudspeakers using signals inclusive of left and right surround signals.

The subject invention, on the other hand, processes input left and right front sound signals along with input left and right rear sound signals, to generate signals for left and right front speakers, along with the input left and right rear sound signals

N:\UserPublic\GO\PB25GOA0.GOR 8

for left and right rear speakers, so that the sound signals from these speakers produce virtual surround speakers to the left and right of the listener.

Applicant submits that this is neither shown nor suggested by Kasai et al.

With regard to claim 5, it is unclear where the Examiner is placing the low-pass filters. In the subject invention, the low-pass filters filter the input left and right rear sound signals prior to being processing and combined with the input left and right front sound signals. Since the input signals in the subject invention are left and right rear sound signals, the low-pass filtering is needed in order to simulate surround signals.

With regard to claim 6, the generating means of the subject invention includes respective delay means for the input left and right rear sound signals. If one were to follow the Examiner's reasoning, the sideward localization means 12 is the generating means. As such, adding compensation delay means in the input surround signals prior to application to the left and right rear loudspeakers may be reasonable. However, that is not what is being claimed in claim 6. Rather, the generating means includes the respective delay means. Equating this to Kasai et al., the sideward localization means 12, which, as shown in Fig. 1 therein, already includes filters 12sum and 12dif, would also include respective

delay means. These delay means would definitely not compensate for the filters but would add to any delays in the filters.

The Kanishi et al. patent discloses a stereo surround system in which a stereo signal (Left and Right signals) is processed to form left and right lower sound signals and left and right upper sound signals for application to 4 respective loudspeakers (see, e.g., Fig. 6), and alternatively processed to additional form rear left and right lower sound signals and left and right upper sound signals for application to 4 additional rear loudspeakers (see, e.g., Fig. 15). With regard to the embodiment shown in Fig. 6, Kanishi et al. discloses that a known reverberation sound generation circuit may be employed.


However, Applicant submits that Kanishi et al. does not supply that which is missing from Kasai et al., i.e., processing input left and right front sound signals along with input left and right rear sound signals, to generate signals for left and right front speakers, along with the input left and right rear sound signals for left and right rear speakers, so that the sound signals from these speakers produce virtual surround speakers to the left and right of the listener.

In view of the above, Applicant believes that the subject invention, as claimed, is not rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

N:\UserPublic\GO\PB25GOA0.GOR 10

Applicant believes that this application, containing claims 5-10, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by   
Edward W. Goodman, Reg. 28,613  
Attorney  
Tel.: 914-333-9611

N:\UserPublic\GO\FB25GOA0.GOR 11